

SERVICE DATE – AUGUST 2, 2013

SURFACE TRANSPORTATION BOARD

DECISION

Docket No. EP 558 (Sub-No. 16)

RAILROAD COST OF CAPITAL—2012

Digest:<sup>1</sup> The agency finds that the cost of capital for the railroad industry in 2012 was 11.11%. This figure represents the Board's estimate of the average rate of return needed to persuade investors to provide capital to the freight rail industry. The cost-of-capital figure, which is calculated each year, is an essential component of many of the agency's core regulatory responsibilities.

Decided: July 31, 2013

One of the Board's regulatory responsibilities is to determine annually the railroad industry's cost of capital.<sup>2</sup> This determination is one component used in evaluating the adequacy of a railroad's revenue each year pursuant to 49 U.S.C. § 10704(a)(2) and (3). Standards for R.R. Revenue Adequacy, 364 I.C.C. 803 (1981), modified, 3 I.C.C. 2d 261 (1986), aff'd sub nom. Consol. Rail Corp. v. United States, 855 F.2d 78 (3d Cir. 1988). The cost-of-capital finding may also be used in other regulatory proceedings, including, but not limited to, those involving the prescription of maximum reasonable rate levels, the proposed abandonment of rail lines, and the setting of compensation for use of another carrier's lines.

This proceeding was instituted in Railroad Cost of Capital—2012, EP 558 (Sub-No. 16) (STB served Feb. 26, 2013) to update the railroad industry's cost of capital for 2012. In that decision, the Board solicited comments from interested persons on the following issues: (1) the railroads' 2012 current cost of debt capital; (2) the railroads' 2012 current cost of preferred equity capital (if any); (3) the railroads' 2012 cost of common equity capital; and (4) the 2012 capital structure mix of the railroad industry on a market value basis.

We have received comments from the Association of American Railroads (AAR) that provide the information that is used in making the annual cost-of-capital determination, as established in Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad

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<sup>1</sup> The digest constitutes no part of the decision of the Board but has been prepared for the convenience of the reader. It may not be cited to or relied upon as precedent. Policy Statement on Plain Language Digests in Decisions, EP 696 (STB served Sept. 2, 2010).

<sup>2</sup> The railroad cost of capital determined here is an aggregate measure. It is not intended to measure the desirability of any individual capital investment project.

Industry's Cost of Capital, EP 664 (Sub-No. 1) (STB served Jan. 28, 2009). Western Coal Traffic League (WCTL) replied to AAR's submission. As discussed below, WCTL expresses concern with the Board's inclusion of a Multi-Stage Discounted Cash Flow (MSDCF) model in the cost-of-capital methodology.

### *2012 Cost-of-Capital Determination*

Consistent with previous cost-of-capital proceedings, AAR calculated the cost of capital for a "composite railroad" based on criteria developed in Railroad Cost of Capital—1984, 1 I.C.C. 2d 989 (1985).<sup>3</sup> According to AAR, the following three railroad holding companies meet these criteria: CSX Corporation (CSX), Norfolk Southern Corporation (NS), and Union Pacific Corporation (UP).

As discussed below, we have examined the procedures used by AAR to calculate the following components for the railroad industry's 2012 cost of capital: (1) cost-of-debt capital; (2) cost of common equity capital; (3) cost of preferred equity capital;<sup>4</sup> (4) capital structure; and (5) composite after-tax cost of capital. We estimate that the 2012 railroad cost of capital was 11.11%.

## **DEBT CAPITAL**

AAR developed its 2012 current cost of debt using bond price data from Bloomberg Professional (Bloomberg), a subscription service. AAR's cost-of-debt figure is based on the market-value yields of the major forms of long-term debt instruments for the railroad holding companies used in the composite. These debt instruments include: (1) bonds, notes, and debentures (bonds); (2) equipment trust certificates (ETCs); and (3) conditional sales agreements (CSAs). The yields of these debt instruments are weighted based on their market values.

### *Cost of Bonds, Notes, and Debentures (Bonds)*

AAR used data from Bloomberg for the current cost of bonds, based on monthly prices and yields during 2012, for all issues (a total of 69) that were publicly traded during the year.<sup>5</sup> To develop the current (in 2012) market value of bonds, AAR used these traded bonds and additional bonds that were outstanding but not publicly traded during 2012. Continuing the procedure in effect since 1988, AAR based the market value on monthly prices for all traded bonds and the face or par value (\$1,000) for all bonds not traded during the year. AAR computed the total market value of all outstanding bonds to be \$27.2 billion (\$26.9 billion

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<sup>3</sup> The composite railroad includes those Class I carriers that: (1) are listed on either the New York or American Stock Exchange; (2) paid dividends throughout the year; (3) had rail assets greater than 50% of its total assets; and (4) had a debt rating of at least BBB (Standard & Poor's) and BAA (Moody's).

<sup>4</sup> There was no preferred stock outstanding in the year 2012.

<sup>5</sup> AAR Opening, V.S. Gray 9.

traded, and \$325 million non-traded).<sup>6</sup> Based on the yields for the traded bonds, AAR calculated the weighted average 2012 yield for all bonds to be 3.239%.<sup>7</sup> We have examined AAR's bond price and yield data and have determined that AAR's computations are correct. Our calculations and data for all bonds are shown in **Tables 1** and **2** of the Appendix.

#### *Cost of Equipment Trust Certificates (ETCs)*

ETCs are not actively traded on secondary markets. Therefore, their costs must be estimated by comparing them to the yields of other debt securities that are actively traded. Following the practice in previous cost-of-capital proceedings, AAR used government securities with maturities similar to these ETCs as surrogates for developing yields. After calculating the 2012 yields for these government securities, AAR added basis points<sup>8</sup> to these yields to compensate for the additional risks associated with the ETCs.

There were no new ETCs issued during 2012. However, there were 9 ETCs outstanding during the year.<sup>9</sup> AAR calculated that the yield spread for ETCs was 80 basis points higher than the yield for government bonds.<sup>10</sup> Using the yield spreads, AAR calculated the weighted average cost of ETCs to be 2.097%<sup>11</sup> and their market value to be \$261 million for 2012.<sup>12</sup>

We have examined and accept the cost and market value of the ETCs using AAR's data. **Table 3** in the Appendix shows a summary of the ETC computations.

#### *Cost of Conditional Sales Agreements (CSAs)*

CSAs represent a small fraction (less than 1%) of total railroad debt. For 2012, no CSAs were modeled.<sup>13</sup>

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<sup>6</sup> AAR Opening, V.S. Gray 9.

<sup>7</sup> AAR Opening, V.S. Gray 10.

<sup>8</sup> A basis point equals 1/100th of a percentage point.

<sup>9</sup> AAR Opening, V.S. Gray 14.

<sup>10</sup> AAR Opening, V.S. Gray 13. This is the same spread used in 2011.

<sup>11</sup> This percentage is lower than the 2011 figure of 2.779%.

<sup>12</sup> AAR Opening, V.S. Gray 14. AAR approximated the market values of ETCs using the same procedures used in previous cost-of-capital determinations.

<sup>13</sup> AAR Opening, V.S. Gray 16. Modeled CSAs are CSAs that can be used in AAR's model to determine market value. According to AAR, non-modeled CSAs are included in the miscellaneous debt category.

### *Capitalized Leases and Miscellaneous Debt*

As in previous cost-of-capital determinations, AAR excluded the cost of capitalized leases and of miscellaneous debt in its computation of the overall current cost of debt because these costs are not directly observable in the open market. Also, in keeping with past practice, AAR included the book value of leases and commercial paper in the overall market value of debt, which is used to determine the railroads' capital structure mix. AAR calculated that the market value for the capitalized leases and miscellaneous debt was \$1.791 billion for 2012.<sup>14</sup> We have examined and accept the market value for capitalized leases and miscellaneous debt using AAR's data. **Table 5** in the Appendix shows the calculations for capitalized leases and miscellaneous debt to be \$1.791 billion.

### *Total Market Value of Debt*

AAR calculated that the total market value for all debt during 2012 was \$29.3 billion.<sup>15</sup> We have examined AAR's data and have determined that AAR's calculation is correct. **Table 6** in the Appendix shows a breakdown of the market value of debt.

### *Flotation Costs of Debt*

AAR calculated flotation costs for bonds, notes, and debentures by calculating a yield based on the price to investors and a yield that also included flotation costs. The difference between the two yields is the flotation costs expressed in percentage points. For 2012, six new issues were reported in five filings.<sup>16</sup> A simple average of the six flotation costs is 0.062%.<sup>17</sup> AAR calculated the 2012 flotation costs for bonds using publicly available data from electronic filings with the U.S. Securities and Exchange Commission (SEC). For the calculation of ETC flotation costs, AAR used a historical SEC study composed of railroad ETC data for the years 1951, 1952, and 1955. SEC, Cost of Flotation of Corporate Securities 1951-1955 (1957). AAR asserts that, in that study, the SEC determined ETC flotation costs to average 0.89% of gross proceeds. *Id.* Using 0.89% for ETCs, and assuming that coupons are paid twice per year and that the duration for new ETCs is 15 years, yields flotation costs of 0.070%.

To compute the overall effect of the flotation cost on debt, the market value weight of the debt outstanding is multiplied by the respective flotation cost. The weight for each type of debt

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<sup>14</sup> AAR Opening, V.S. Gray 18. This figure consists of \$1.865 billion of capitalized leases and negative \$73.829 million of miscellaneous debt. AAR Opening, Appendix E. The miscellaneous debt figure is negative due to the inclusion of debt premiums and discounts. Non-modeled ETCs, as defined by AAR, are included in the miscellaneous debt category.

<sup>15</sup> AAR Opening, V.S. Gray 18.

<sup>16</sup> AAR Opening, V.S. Gray 21.

<sup>17</sup> AAR Opening, V.S. Gray 23.

is based on market values for debt, excluding all other debt.<sup>18</sup> All other debt is excluded from the weight calculation, because a current cost of debt for other debt has not been determined.<sup>19</sup> AAR calculated that flotation costs for debt equal 0.062%.<sup>20</sup>

We have reviewed AAR's calculations concerning flotation costs and find that the cost factors developed for the various components of debt are reasonable.<sup>21</sup> **Table 7** in the Appendix shows these calculations.

#### *Overall Current Cost of Debt*

AAR concluded that the railroads' cost of debt for 2012 was 3.29%.<sup>22</sup> We have verified that the percentage put forth by AAR is correct. **Table 8** in the Appendix shows the overall current cost of debt.

### **COMMON EQUITY CAPITAL**

We estimate the cost of common equity capital by calculating the simple average of estimates produced by the Capital Asset Pricing Model (CAPM) and the Morningstar/Ibbotson MSDCF.

#### *CAPM*

Under CAPM, the cost of equity is equal to  $RF + \beta \times RP$ , where RF is the risk-free rate, RP is the market-risk premium, and  $\beta$  (or beta) is the measure of systematic, non-diversifiable risk. In order to calculate RF, we asked the railroads to provide the average yield to maturity in 2012 for a 20-year U.S. Treasury Bond. Similarly, the railroads were asked to provide an estimate for RP based on returns experienced by the S&P 500 since 1926. Finally, we instructed the railroads to calculate beta using a portfolio of weekly, merger-adjusted railroad stock returns for the prior five years in the following equation:

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<sup>18</sup> All other debt represents capitalized leases, miscellaneous debt, non-modeled ETCs, and non-modeled CSAs.

<sup>19</sup> Current costs can be determined for three of the four debt categories—bonds, ETCs, and CSAs. Therefore, the weighted average cost of debt is based upon these three (of the four) debt categories. AAR Opening, V.S. Gray 18.

<sup>20</sup> AAR Opening, V.S. Gray 23.

<sup>21</sup> AAR calculated the 2012 flotation costs for bonds using publicly available data from electronic filings with the SEC.

<sup>22</sup> AAR Opening, V.S. Gray 24. This percentage is lower than the 2011 cost of debt (3.97%). As explained above, our measurement of the railroads' cost of debt entails the calculation of a weighted average of the current yields of the various debt instruments issued by the three railroads in our sample.

$R - SRRF = \alpha + \beta(RM - SRRF) + \varepsilon$ , where

$\alpha$  = constant term;

$R$  = merger-adjusted stock returns for the portfolio of railroads that meet the screening criteria set forth in Railroad Cost of Capital – 1984, 1 I.C.C. 2d 989 (1985);

$SRRF$  = the short-run risk-free rate, which we will proxy using the 3-month U.S. Treasury bond rate;

$RM$  = return on the S&P 500; and

$\varepsilon$  = random error term.

#### *RF – The Risk-Free Rate*

To establish the risk-free rate, AAR relies on the Federal Reserve website to retrieve the average yield to maturity for a 20-year U.S. Treasury Bond. Using the average yield to maturity in 2012 for a 20-year U.S. Treasury Bond, consistent with Railroad Cost of Capital—2006, AAR calculated the 2012 risk-free rate to be 2.54%.<sup>23</sup> We have examined AAR's data and the data from the Federal Reserve's website, and have determined that AAR's computation is correct.

#### *RP – The Market-Risk Premium*

Using the approach settled upon in the Cost of Capital Methodology, AAR submitted data reflecting a market-risk premium of 6.70%.<sup>24</sup> We have examined the underlying data here and agree that the market-risk premium is 6.70%.

#### *Calculating Beta*

The Cost of Capital Methodology requires parties to calculate CAPM's beta using a portfolio of weekly, merger-adjusted stock returns for the prior five years in the following equation:  $R - SRRF = \alpha + \beta(RM - SRRF) + \varepsilon$ . In applying the modified approach for the calculation of beta,<sup>25</sup> as applied in Railroad Cost of Capital—2010, slip op. at 6, AAR's calculations estimate that the value of beta is 1.1543.<sup>26</sup>

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<sup>23</sup> AAR Opening, V.S. Gray 28.

<sup>24</sup> AAR Opening, V.S. Gray 29.

<sup>25</sup> For the purposes of determining the number of shares outstanding, new shares outstanding are assigned to the first Friday on, or after, the effective date.

<sup>26</sup> AAR Opening, V.S. Gray 33. AAR uses the SAS General Linear Model procedure to compute regression data. The Board uses a standard Excel regression method.

*Cost of Common Equity Capital using CAPM*

Using the modified approach for assigning the new shares outstanding, we calculate the cost of equity as  $RF + \beta \times RP$ , or  $2.54\% + (1.1543 \times 6.70\%)$ , which equals 10.27%.<sup>27</sup> **Tables 9 and 10** in the Appendix show the calculations of the cost of common equity using CAPM.

To calculate the 2012 market value of common equity for each railroad, AAR calculated each railroad's weekly market value using data on shares outstanding from railroad 10-Q and 10-K reports, multiplied by stock prices at the close of each week in 2012. AAR calculated the combined 52-week average market value of the railroads as \$100.1 billion.<sup>28</sup>

*Multi-Stage Discounted Cash Flow*

The cost of equity in a Discounted Cash Flow (DCF) model is the discount rate that equates a firm's market value to the present value of the stream of cash flows that could affect investors. These cash flows are not presumed to be paid out to investors; instead, it is assumed that investors will ultimately benefit from these cash flows through higher regular dividends, special dividends, stock buybacks, or stock price appreciation. Incorporation of these cash flows, as well as the expected growth of earnings, are the essential elements of the Morningstar/Ibbotson MSDCF model.

*Cash Flow*

The Morningstar/Ibbotson MSDCF model defines cash flows (CF), for the first two stages, as income before extraordinary items (IBEI), minus capital expenditures (CAPEX), plus depreciation (DEP) and deferred taxes (DT), or

$$CF = IBEI - CAPEX + DEP + DT.$$

The third-stage cash flow is based on two assumptions: depreciation equals capital expenditures, and deferred taxes are zero. That is, cash flow in the third stage of the model is based only on IBEI.

To obtain an average cash flow to sales ratio, AAR divided the total cash flow in the 2008-2012 periods by the total sales over the same period. To obtain the 2012 average cash flow, the cash-flow-to-sales ratio is multiplied by the sales revenue from 2012. The 2012 average cash flow figure is then used as the starting point of the Morningstar/Ibbotson MSDCF model. The initial value of IBEI is determined through the same averaging process for the cash flows in stages one and two. According to AAR, the data inputs in the cash flow formula were retrieved from the railroads' 2008-2012 10-K filings with the SEC.

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<sup>27</sup> AAR Opening, V.S. Gray 34.

<sup>28</sup> AAR Opening, V.S. Gray 25.

### *Growth Rates*

Growth of earnings is also calculated in three stages. These three growth-rate stages are what make the Morningstar/Ibbotson model a “multi-stage” model. In the first stage (years one through five), the firm’s annual earnings growth rate is assumed to be the median value of the qualifying railroad’s three- to five-year growth estimates, as determined by railroad industry analysts, and published by Institutional Brokers Estimate System (I/B/E/S). In the second stage (years six through 10), the growth rate is the average of all growth rates in stage one. In the third stage (years 11 and onwards), the growth rate is the long-run nominal growth rate of the U.S. economy. This long-run nominal growth rate is estimated by using the historical growth in real GDP and the long-run expected inflation rate.

AAR calculated the first- and second-stage growth rates according to the I/B/E/S data, which was retrieved from Thomson One Investment Management. The third-stage growth rate of 5.48% was calculated by using the sum of the long-run expected growth in real output (3.22%) and the long-run expected inflation (2.26%).<sup>29</sup>

After reviewing the evidence provided by AAR, we find the growth rates correct and consistent with the Board’s approved methodology, and we will employ them in the determination of the cost of equity for 2012.

### *Market Values for MSDCF*

The final inputs to the Morningstar/Ibbotson MSDCF model are the stock market values for the equity of each railroad. According to AAR, it used stock prices from Yahoo Finance for December 31, 2012, and shares outstanding from the 2012 Q3 10-Q reports filed with the SEC.

We have reviewed AAR’s evidence and find that the market values used in the 2012 estimate of the cost of equity, using the Morningstar/Ibbotson MSDCF model, should have applied the stock price for December 28, 2012, rather than the stock price for December 31, 2012. December 31, 2012 falls outside of the 2012 data set for calculating the cost of equity because there was only one trading day in 2012 during that week. The Board defines the first trading week of a year to be the first week in the year that contains three or more trading days. See R.R. Cost of Capital—2008, EP 558 (Sub-No. 12), slip op. at 7 n.16 (STB served Sept. 25, 2009). Thus, by defining the first week in the new trading year, the Board has implicitly defined the last week in the previous trading year. As such, the week of December 31, 2012, will start the 2013 trading year and the week of December 24, 2012, is the final week in the 2012 trading year. Further, in determining the market value for common equity, the Board uses the closing price of the last trading day of the last trading week of the year.

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<sup>29</sup> AAR Opening, V.S. Gray 40.



*Cost of Common Equity Capital Using MSDCF*

AAR estimates a MSDCF cost of equity of 16.39%.<sup>30</sup> Based upon our adjustment stated above, we calculate the MSDCF as 16.53%, and we will average this estimate with the cost of equity derived from the CAPM approach. **Table 11** shows the MSDCF inputs and the cost of equity calculation.

*Cost of Common Equity*

Based on the evidence provided, we conclude that the railroad cost of equity in 2012 is 13.40%.<sup>31</sup> This figure is based on an estimate of the cost of equity using CAPM of 10.27% and a MSDCF estimate of 16.53%. **Table 12** shows costs of common equity for each model and the average of the two models.

In its comments, WCTL argues that use of the MSDCF methodology produces a higher cost of equity than the CAPM, and that such a disparity in values should prompt inquiry as to the underlying cause and consideration of which value is more probative. Toward this end, WCTL alleges that a reduction in the number of outstanding shares can cause earnings-per-share (EPS) estimates to increase faster than overall earnings and potentially lead to a disparity such as the current one between the MSDCF and CAPM results. WCTL urges the Board to rely exclusively on CAPM to estimate the cost of equity at least until the MSDCF methodology can be corrected. On rebuttal, AAR argues, among other things, that WCTL should not be permitted to collaterally attack the Board's prior decision to include the MSDCF model in the railroad industry's cost of equity. AAR notes that WCTL does not argue that the AAR had erred in its calculation or misapplied the Board's established methodology, including the MSDCF model. Moreover, AAR argues that: (1) WCTL's attempted collateral attack on the Board's approved methodology relies on counsel's argument and is not supported by expert testimony; (2) it is equally true that reducing the outstanding number of shares would cause EPS to decrease faster than overall earnings if earnings decrease, and there are times when the number of outstanding shares will actually increase; and (3) WCTL has not demonstrated that the analysts who predict relevant growth rates do not take into account the effect of stock issuances and repurchases in their estimates.

We will not address WCTL's argument as this proceeding is not the proper forum for a party to propose changes to the Board's cost-of-capital methodology. As the Board stated in Methodology to Be Employed in Determining the Railroad Industry's Cost of Capital, EP 664, slip op. at 18, (STB served Jan. 17, 2008), "while in the past we have entertained challenges to the agency's model in the 558 proceedings, we will no longer do so. As such, future requests to [change our methodology] must be brought (in the form of a petition for rulemaking) in a 664 proceeding, not in the annual 558 proceeding, in which we calculate the cost of capital for a particular year." Thus, WCTL's argument will not be considered.

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<sup>30</sup> AAR Opening, V.S. Gray 42.

<sup>31</sup> AAR Opening, V.S. Gray 42-43.

## PREFERRED EQUITY

Preferred equity has some of the characteristics of both debt and equity. Essentially, preferred stock issues are like common stocks in that they have no maturity dates and represent ownership in the company (usually with no voting rights attached). They are similar to debt in that they usually have fixed dividend payments (akin to interest payments).

There were no preferred stock issues outstanding at the end of 2012.

## CAPITAL STRUCTURE MIX

The Board will apply the same inputs used in the market value for the CAPM model to the capital structure.

We have determined that the average market values of debt and common equity are \$29.3 billion and \$100.1 billion, respectively. The percentage share of debt increased, from 20.83% in 2011 to 22.62% in 2012. The percentage share of common equity decreased, from 79.17% in 2011 to 77.38% in 2012. **Table 13** in the Appendix shows the calculations of the average market value of common equity and relative weights for each railroad. **Table 14** in the Appendix shows the 2012 capital structure mix.

## COMPOSITE COST OF CAPITAL

Based on the evidence furnished in the record, and our adjustments to the calculations discussed above, we conclude that the 2012 composite after-tax cost of capital for the railroad industry, as set forth in **Table 15** in the Appendix, was 11.11%. The procedure used to develop the composite cost of capital is consistent with the Statement of Principle established by the Railroad Accounting Principles Board: “Cost of capital shall be a weighted average computed using proportions of debt and equity as determined by their market values and current market rates.” R.R. Accounting Principles Bd., Final Report, Vol. 1 (1987). The 2012 cost of capital was 0.46 percentage points lower than the 2011 cost of capital (11.57%).

## CONCLUSIONS

We find that for 2012:

1. The current cost of railroad long-term debt was 3.29%.
2. The cost of common equity was 13.40%.
3. The capital structure mix of the railroads was 22.62% long-term debt and 77.38% common equity.
4. The composite railroad industry cost of capital was 11.11%.

*Environmental and Energy Considerations*

We conclude that this action will not significantly affect either the quality of the human environment or the conservation of energy resources.

It is ordered:

1. This decision is effective on **September 1, 2013**.
2. This proceeding is discontinued.

By the Board, Chairman Elliott, Vice Chairman Begeman, and Commissioner Mulvey.

**APPENDIX**

**Table 1**  
**2012 Traded & Non-traded Bonds**

<b>Railroad</b>	<b>Traded vs. Untraded</b>	<b>Number</b>	<b>Market Value (\$ in 000)</b>	<b>% Market Value to All Bonds</b>
CSX	Traded <sup>1</sup>	25	\$9,756,990	98.59%
	Non-traded	6	139,496	1.41%
	Total	31	9,896,486	
NSC	Traded <sup>2</sup>	21	9,521,962	99.12%
	Non-traded	2	84,903	0.88%
	Total	23	9,606,865	
UPC	Traded <sup>3</sup>	23	7,605,504	98.70%
	Non-traded	8	100,391	1.30%
	Total	31	7,705,895	
<b>Composite</b>	Traded	69	\$26,884,456	98.81%
	Non-traded	16	324,790	1.19%
	Total	85	27,209,246	
<sup>1</sup> Includes 2 bonds issued during 2012, prorated based on date of issue. <sup>2</sup> Includes 3 bonds issued during 2012, prorated based on date of issue. <sup>3</sup> Includes 2 bonds issued during 2012, prorated based on date of issue.				

**Table 2**  
**2012 Bonds, Notes, & Debentures**

<b>Railroad</b>	<b>Number of Traded Issues</b>	<b>Market Value Traded Issues (\$000)</b>	<b>Current Cost</b>	<b>Weighted Cost</b>
CSX	25	\$9,756,990	3.396%	1.232%
NSC	21	9,521,962	3.302%	1.170%
UPC	23	7,605,504	2.959%	0.837%
<b>Composite</b>	69	<b>\$26,884,456</b>		<b>3.239%</b>

**Table 3**  
**2012 Equipment Trust Certificates**

<b>Railroad</b>	<b>No. of Issues</b>	<b>Market Value (\$000)</b>	<b>Yield %</b>	<b>Weighted \$ Yield (\$000)</b>
CSX	5	\$72,668	1.220%	\$887
NSC	2	34,818	1.148%	400
UPC	2	153,068	2.729%	4,177
<b>Composite</b>	<b>9</b>	<b>\$260,554</b>	<b>2.097%</b>	<b>\$5,464</b>

**Table 4**  
**2012 Conditional Sales Agreements**

<b>Railroad</b>	<b>Number of Issues</b>	<b>Market Value (\$000)</b>	<b>Current Cost</b>	<b>Weighted Cost</b>
<b>Composite</b>		\$		%

**Table 5**  
**2012 Capitalized Leases & Miscellaneous Debt**

<b>Railroad</b>	<b>Capitalized Leases (\$000)</b>	<b>Miscellaneous Debt<sup>1</sup> (\$000)</b>	<b>Total Other Debt (\$000)</b>
CSX	\$11,979	\$34,721	\$46,700
NSC	4,248	(311,668)	(307,420)
UPC	1,848,675	203,118	2,051,793
<b>Composite</b>	<b>\$1,864,902</b>	<b>(\$73,829)</b>	<b>\$1,791,073<sup>2</sup></b>
<sup>1</sup> Miscellaneous debt includes debt premiums and discounts.			
<sup>2</sup> This figure includes \$11,983 of non- modeled CSAs.			

**Table 6**  
**2012 Market Value of Debt**

<b>Type of Debt</b>	<b>Market Value of Debt (\$000)</b>	<b>Percentage of Total Market Value (Excluding Other Debt)</b>
Bonds, Notes, & Debentures	\$27,209,246	99.05%
ETCs	260,554	0.95%
CSAs		0.00%
Subtotal	\$27,469,800	100.00%
Capitalized Leases/Miscellaneous Debt	1,791,073	NA
<b>Total Market Value of Debt</b>	<b>\$29,260,873</b>	<b>NA</b>

**Table 7**  
**2012 Flotation Cost for Debt**

<b>Type of Debt</b>	<b>Market Weight (Excludes Other Debt)</b>	<b>Flotation Cost</b>	<b>Weighted Average Flotation Cost</b>
Bonds, Notes, & Debentures	99.05%	0.062%	0.061%
ETCs	0.95%	0.070%	0.001%
CSAs	0.00%	0.000%	0.000%
<b>Total</b>	<b>100.00%</b>		<b>0.062%</b>

**Table 8**  
**2012 Cost of debt**

<b>Type of Debt</b>	<b>Percentage of Total Market Value (Excludes Other Debt)</b>	<b>Debt Cost</b>	<b>Weighted Debt Cost (Excluding Other Debt)</b>
Bonds, Notes, & Debentures	99.05%	3.239%	3.2084%
ETCs	0.95%	2.097%	0.0199%
CSAs	0.00%	0.00%	0.0000%
Subtotal	100.00%		3.228%
Flotation Cost			0.062%
<b>Weighted Cost of Debt</b>			<b>3.290%</b>

**Table 9**  
**2012 Summary Output**

<b>Regression Statistics</b>					
Multiple R	0.783058				
R-Square	0.613179				
Adjusted-R Square	0.611686				
Standard Error	0.029697				
Observations	261				
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.362072	0.362072	410.5607	2.41299E-55
Residual	259	0.228411	0.000882		
Total	260	0.590483			
	Coefficients	Standard Error	T Stat	P-Value	
Intercept	0.002950	0.001838	1.605052	0.109701	
X-Variable	1.154287	0.056967	20.2623	2.41299E-55	

**Table 10**  
**2012 CAPM Cost of Common Equity**

Risk-Free Rate (RF)	2.54%	
RF+(Beta x Market Risk Premium)	2.54% + ( 1.1543 x6.70%)	10.27%
<b>Cost of Equity</b>		<b>10.27%</b>

**Table 11**  
**2012 MS-DCF Railroad Cost of Equity**  
(\$ in millions)

Railroad	CSX		NSC		UNP	
Initial CF	\$1,202		\$1,160		\$2,617	
Input for terminal CF	\$1,697		\$1,734		\$3,327	
Stage 1 Growth Rate	14.70%		12.10%		15.40%	
Stage 2 Growth Rate	14.07%		14.07%		14.07%	
Stage 3 Growth Rate	5.48%		5.48%		5.48%	
Year	Value on 12/31 of each year	Present Value	Value on 12/31 of each year	Present Value	Value on 12/31 of each year	Present Value
1	\$1,379	\$1,165	\$1,300	\$1,105	\$3,020	\$2,614
2	1,581	1,130	1,458	1,053	3,485	2,611
3	1,814	1,095	1,634	1,004	4,022	2,608
4	2,080	1,062	1,832	956	4,641	2,605
5	2,386	1,029	2,053	911	5,356	2,602
6	2,722	992	2,342	883	6,109	2,569
7	3,105	957	2,672	856	6,969	2,536
8	3,542	922	3,048	830	7,949	2,504
9	4,040	889	3,476	805	9,067	2,472
10	4,608	857	3,965	781	10,343	2,441
Terminal	\$53,454	\$9,942	\$51,385	\$10,116	\$137,941	\$32,552
ΣPV	\$20,040		\$19,301		\$58,113	
Market Value	\$20,040		\$19,301		\$58,113	
COE	18.32%		17.65%		15.53%	
Weighted COE	3.77%		3.50%		9.26%	
<b>COE</b>	<b>16.53%</b>					

**Table 12**  
**2012 Cost of Common Equity Capital**

<b>Model</b>	
Capital Asset Pricing Model	10.27%
Multi-Stage Discounted Cash Flow	16.53%
<b>Cost of Common Equity</b>	<b>13.40%</b>



**Table 13**  
**2012 Average market Value**

<b>Railroad</b>	<b>Average Market Value (\$000)</b>	<b>Average Market Weight</b>
CSX	\$22,471,841	22.45%
NSC	22,116,997	22.09%
UPC	55,513,550	55.46%
<b>COMPOSITE</b>	<b>\$100,102,388</b>	<b>100.00%</b>

**Table 14**  
**2012 Capital Structure Mix**

<b>Railroad</b>	<b>Type of Capital</b>	<b>Market Value (\$000)</b>	<b>Weight</b>
CSX	Debt	\$10,015,854	30.83%
	Equity	22,471,841	69.17%
NSC	Debt	9,334,263	29.68%
	Equity	22,116,997	70.32%
UPC	Debt	9,910,756	15.15%
	Equity	55,513,550	84.85%
Composite Weight	Debt	29,260,873	22.62%
	Equity	100,102,388	77.38%
	Total	\$129,363,261	100.00%

**Table 15**  
**2012 Cost-of-Capital Computation**

<b>Type of Capital</b>	<b>Cost</b>	<b>Weight</b>	<b>Weighted Average</b>
Long-Term Debt	3.29%	22.62%	0.74%
Common Equity	13.40%	77.38%	10.37%
<b>Composite Cost of Capital</b>		<b>100.00%</b>	<b>11.11%</b>